

REMARKS

The Office Action of July 27, 2009, and the prior art relied upon therein have been carefully reviewed. The claims in the application are now those previously pending, namely claims 15-17, 20-22, 24, 25 and 28 and newly added claims 29-31, which claims define patentable subject matter, thereby warranting their allowance. Applicant requests favorable reconsideration and allowance.

As the pesticides listed in claim 15 are all fungicides, the examined claims have been amended to specify "one or more fungicides" rather than "one or more pesticides." The preamble of claim 15 has also been slightly amended, and a recitation has been added at the end of claim 15 which was previously implicit from the preamble which recited a EW (emulsion in water) composition, which clearly requires the presence of water. Accordingly, the amendments to claim 15 are entirely cosmetic.

New claims 29-31 have been added in part based on the preferred examples in the paragraphs beginning at page 4, line 19 and line 27 of Applicant's specification, claim 29 being a second independent composition claim of scope somewhat narrower than the scope of claim 15. These claims are patentable for the reasons given below in replying to the prior art rejection of record.

Claims 15, 16, 20, 22 and 28 have been rejected as obvious under §103 from Taranta in view of Aven. This rejection is respectfully traversed for the reasons of record, repeated

respectfully by reference from the preceding reply, and for the additional reasons set forth below.

On page 3, paragraph 8, the Examiner states that the "abstract and claims of Taranta specifically teach that the composition is to comprise an ester of aliphatic monocarboxylic acids." That is not exactly correct. The abstract and claims of Taranta say the composition is to comprise an ester of an aliphatic monocarboxylic acid **or** an ester of an aliphatic dicarboxylic acid **or** an ester of aromatic monocarboxylic acid, esters of aromatic dicarboxylic and tri-n-alkylphosphates. The number of possibilities of compounds which fall within the Taranta composition is thus truly immense, and this cannot be validly disputed.

The Office Action further states on page 3 that "the number of disclosed monocarboxylic acids **is quite limited...**" (emphasis added). This also is incorrect. The listing of monocarboxylic acids is given in paragraph [0032]. Included in this listing are both specific and generic designations, the generic designations themselves including large numbers of unspecified possibilities. But counting just the designations in paragraph [0032] there are listed forty (40) different possibilities. This cannot be validly characterized as being "quite limited."

Moreover, these are not the only possibilities, as further possibilities are given in paragraphs [0033] through [0036] and paragraphs [0038] though [0040]. As Applicant pointed out previously, the list of possibilities from which a selection must be made to reach Applicant's lactates from Taranta is truly immense.

Applicant previously respectfully pointed out that the ester solvents of Taranta appear in a huge "basket" or "shotgun" disclosure, with no disclosure in Taranta leading the person of ordinary skill in the art to select only lactate esters from these huge basket or shotgun disclosures, and consequently Taranta does not lead the person of ordinary skill in the art to the selection of any lactate esters. This cannot be validly denied, as the listing of hundreds and possibly thousands of possibilities does not lead one to select what the present invention requires. In this regard, Applicant noted that the basket or shotgun disclosure of Taranta is akin to presenting a person with the face of a combination lock and expecting that person to figure out the combination. Applicant respectfully notes *Ex parte Garvey*, 41 USPQ 583 (1939), in which the Board said:

... The likelihood of producing a composition such as here claimed from a disclosure such as shown by the Dykstra patent would be about the same as the likelihood of discovering the combination of a safe from a mere inspection of the dials thereof.

Neither Taranta nor Aven provides any reason for selecting a lactate from among the many hundreds or more possibilities listed by Taranta.

The Office Action further states on page 3 that it "is obvious to try choosing from a finite number of identified, predictable solvents, with a reasonable expectation of success." First, the PTO must admit that Applicant's results are not at all predictable because Taranta provides not the remotest hint of Applicant's results from the use of lactates. Moreover, it cannot be validly stated that there would be "a reasonable

expectation of [Applicant's] success" as again Taranta does not indicate that a different type of success (prevention of crystallization) will result from the selection of lactate esters from among the many hundreds or even thousands of possibilities set forth by Taranta.

Please note in this regard that what Applicant has done can be considered the elimination of an element without the elimination of its function, one of the old classic indicia of non-obviousness. Thus, paragraph [0041] of Taranta says that it is preferred to use two or more solvents, not at all necessary according to the present invention; and in paragraph [0042] that it is particularly advantageous, when the active substance is not very soluble, to incorporate one or more polar co-solvents. In paragraphs [0043] and [0044] Taranta suggests the use of ketones, alcohols, etc. as appropriate polar co-solvents, all unnecessary according to the present invention. And finally, in paragraph [0045] Taranta mentions for the first time that the polar co-solvent is used "to avoid crystallization during the dilution before application."

Thus, the only solution given by Taranta to avoid crystallization is to use a polar co-solvent. It is therefore fair to say that in order to achieve or insure Applicant's results of crystal inhibition, Taranta requires the use of a polar co-solvent, i.e. an added ingredient which is not necessary according to the present invention. Thus, the present invention eliminates the need for a polar co-solvent as taught by Taranta to avoid crystallization, and this is another reason why Applicant's claims define non-obvious subject matter.

Page 3 of the Office Action then further states that "patents are relevant as prior art for all they contain." Applicant does not dispute this. But the issue here is obviousness, and therefore the guidance which is provided by the prior art. When the prior art provides many hundreds or even thousands of possibilities, the person of ordinary skill in the art would look elsewhere for better guidance, and that "elsewhere" is in the examples of Taranta. It should be abundantly clear that it makes no sense at all for the person of ordinary skill in the art to start testing each and every one of the hundreds and even thousands of the possibilities of esters set forth in paragraphs [0033] through [0040] of Taranta. Instead, the logical and therefore the obvious way to proceed is to proceed according to the much more specific disclosure of Taranta's examples where six different solvents were used, and those examples **lead away** from the present invention.

It is of course fundamental that predictability is a key issue in evaluating obviousness, and that if something in a claimed invention would not reasonably have been predicted from the reference disclosure, the subject matter is considered non-obvious. A relatively recent case of the Federal Circuit points this out in a slightly different context in the case of *Sanofi-Synthélabo v. Apotex*, 89 USPQ2d 1370, 1377-1380 (Fed. Cir. 2008), where the Court stated in part:

... Only with hindsight knowledge that the dextrorotatory enantiomer has highly desirable products, can Apotex argue that it would have been obvious to select this particular racemate.... The application of hindsight is inappropriate where the prior art does not suggest that this enantiomer could reasonably be expected to manifest the properties and

advantages that were found for this particular... isomer. [citations omitted; page 1379].

... The evidence at trial well supported the finding that the result... was unpredictable. We discern no error in the district court's implicit recognition that the principles of KSR do not affect the conclusion herein.

... We discern no error in the district court's findings that, on the state of the prior art, a person of ordinary skill would not have had the expectation that separating the enantiomers would be likely to produce an isomer having absolute stereoselectivity as to both the favorable antiplatelet activity and the unfavorable neurotoxicity. [page 1380].

Validity was affirmed.

This case supports Applicant's position. It could not have been predicted or foreseen from the prior art, i.e. "a person of ordinary skill would not have had the expectation" that lactate esters would provide the benefit of substantially eliminating crystallization for the claimed fungicides (which exhibit a high tendency toward crystallization when diluted with water).

The *Sanofi* case also addresses the issue of the difference between selecting from only a few examples and selecting from many examples, 80 acids in *Sanofi*.

The district court observed that the scientific literature listed eighty acids as candidates for forming salts with basic drug compounds, fifty-three of which acids had been used in FDA-approved drugs. The experts of both parties agreed that whether a pharmaceutically suitable crystalline salt will form from a particular acid-base combination is unpredictable. The district court distinguished the facts of this case from those of *Pfizer* 480 F.3d 1348, where there was evidence... a person of ordinary skill would have narrowed the possible salts to only a few... [page 1379]

Applicant has pointed out above and previously that the choices of acid esters provided by Taranta amount to the many hundreds, and possibly thousands. Applicant's selection was unobvious, and Applicant's results could not have been reasonably expected.

The Examiner may wish to consider a decision of the PTO Board of Patent Appeals and Interferences decided January 4, 2008, to which Applicant respectfully invites the Examiner's attention. This is the decision in *Ex Parte So and Thomas*, Appeal 2007-3967, a copy of the five page slip decision being attached hereto. In reversing the decision, the Board stated as follows at page 4:

... We appreciate the Examiner's point... that compositions of [the prior art] may include glycine which is one of the complexing agents encompassed by claim 29. However, glycine is only one of the many alternative ingredients disclosed by [such prior art].

... Similarly, while the numerous composition ingredients of [the prior art] include glycine, one of the here claimed complexing agents, there is nothing in the applied references which would have motivated an artisan to select this particular ingredient....

Again, the situation is similar to that of the present application, i.e. "there is nothing in the applied references which would have motivated an artisan to select" lactate esters from among the many possibilities disclosed by Taranta.

Aven has been cited for a purpose entirely unrelated to the discussion presented above. Thus, even if it were obvious to modify Taranta by what is suggested by Aven, which does not make up for the aforementioned deficiencies of Taranta, the resultant reconstructed Taranta would not reach any of Applicant's claims.

Withdrawal of the rejection is in order and is respectfully requested.

Claims 17, 21, 24 and 25 have been rejected as obvious under §103 from Taranta in view of Lubetzky et al EP 0 670 113 (Lubetzky). The rejection also refers to another Lubetzky et al "US 0670113", but there appears to be no such document. The rejection is respectfully traversed for reasons of record, respectfully repeated by reference, and for the reasons set forth below.

The statement of the rejection does not include any reliance on Aven, but paragraph 18 suggests that the Examiner may have intended to rely on Aven, and this is further suggested by reference in the rejection to the earlier rejection "as applied to claims 15, 16, 20, 22 and 28 above" wherein Aven was relied upon. Applicant will therefore assume that this rejection is intended to be based on Taranta in view of Aven and Lubetzky EP '113. This rejection is respectfully traversed.

Claims 17, 21, 24 and 25 depend ultimately from claim 15 and thus incorporate the subject matter of claim 15. It has been pointed out above that claim 15 defines non-obvious subject matter over Taranta and over Taranta in view of Aven.

Lubetzky has been cited only for its disclosure of the use of a rosin component. Lubetzky does not cure any of the deficiencies pointed out above. Therefore, even if the proposed combination were obvious, the so-reconstructed Taranta would not reach even claim 15, let alone claims 17, 21, 24 and 25.

Withdrawal of the rejection is in order and is respectfully requested.

The prior art documents of record and not relied upon by the PTO have been noted, along with the implication that such documents are deemed by the PTO to be insufficiently material to warrant their application against any of Applicant's claims.

Applicant believes that all issues raised in the Official Action have been addressed above in a manner that should lead to patentability of the present application. Favorable consideration and early formal allowance are respectfully requested.

If the Examiner has any questions or suggestions, the Examiner is respectfully requested to contact the undersigned at (202) 628-5197.

Respectfully submitted,  
BROWDY AND NEIMARK, P.L.L.C.  
Attorneys for Applicant

By Sheridan Neimark  
Registration No. 20,520

SN:ltm  
G:\BN\N\NGX\SESSION3\PTO\2010-01-26 AND.doc  
Telephone No.: (202) 628-5197  
Facsimile No.: (202) 737-3528

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* JOSEPH K. SO  
and TERENCE M. THOMAS

---

Appeal 2007-3967  
Application 10/454,877  
Technology Center 1700

---

Decided: January 4, 2008

---

Before BRADLEY R. GARRIS, THOMAS A. WALTZ, and  
PETER F. KRATZ, *Administrative Patent Judges*.

GARRIS, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134 from the Examiner's  
decision rejecting claims 29-38. We have jurisdiction under 35 U.S.C. § 6.

We REVERSE.

Appellants claim a method for removing copper (I)-BTA complex  
precipitate comprising polishing a microelectronic substrate in a manner  
such that the precipitate is formed, introducing a copper polishing cleaning

solution to dissolve the precipitate and form copper (I) ions, wherein the cleaning solution includes an amino acid complexing agent having a dipole ion structure, forming a complex between the copper ions and the complexing agent, and maintaining the copper ions in solution with the complexing agent to prevent the copper ions from redepositing on the micro-electronic substrate.

Representative claim 29 reads as follows:

29. A method useful for removing copper(I)-BTA complex precipitate from substrates and polishing pads comprising the steps of:

polishing a microelectronic substrate in a manner wherein the concentration of copper ions exceeds the solubility constant ( $K_{sp}$ ) and copper ions react with BTA to form the copper(I)-BTA complex precipitate on the microelectronic substrate;

introducing a copper polishing cleaning solution to dissolve the copper(I)-BTA complex precipitate and form copper(I) ions in the cleaning solution, the copper polishing cleaning solution having an amino acid complex agent, the complexing agent having a dipole ion structure;

forming a complex between the copper ions and the complexing agent; and

maintaining the copper ions in solution with the complexing agent to prevent the copper ions from redepositing on the microelectronic substrate.

The references set forth below are relied upon by the Examiner as evidence of obviousness:

Kakizawa<sup>1</sup>

WO 01/71789 A1

Sep. 3, 2001

---

<sup>1</sup> As an English language equivalent to WO 01/71789, the Examiner and Appellants rely on and refer to Patent Application Publication US 2003/0083214 A1 to Kakizawa et al. (Kakizawa). We shall do likewise.

Wojtczak	6,344,432 B1	Feb. 5, 2002
Kakizawa	US 2003/0083214 A1	May 1, 2003
Kondo	6,561,883 B1	May 13, 2003
Pasqualoni	6,749,488 B2	Jun. 15, 2004

Under 35 U.S.C. § 103(a): claims 29-32 are rejected as being unpatentable over Wojtczak in view of Kondo or Pasqualoni, and claims 29-38 are rejected as being unpatentable over Kakizawa in view of Kondo or Pasqualoni.

The Examiner considers each of Wojtczak and Kakizawa to disclose a post-CMP (i.e., chemical mechanical polishing) composition for cleaning a microelectronic substrate but acknowledges that neither of these references teaches removing copper(I)-BTA precipitate specifically from a microelectronic substrate (Ans. 3, 5). In this latter regard, the Examiner asserts that the CMP compositions of either Kondo or Pasqualoni would necessarily form the aforementioned precipitate (Ans. 4, 5) and that it would have been obvious to follow the CMP methods of Kondo or Pasqualoni with the post-CMP cleaning methods of Wojtczak (*id.*) or Kakizawa (Ans. 6), thereby resulting in a method corresponding to the method defined by independent claim 29.

These rejections are deficient in a number of respects.

First, we agree with Appellants (App. Br. 6-8; Reply Br. 2-3) that neither Kondo nor Pasqualoni expressly or inherently teaches the formation of copper(I)-BTA complex precipitate. As emphasized by Appellants and explicitly recited in claim 29, the formation of this precipitate requires more than simply the presence of a certain BTA concentration. An additional requirement is polishing the microelectronic substrate in such a manner that

"the concentration of copper ions exceeds the solubility constant ( $K_{sp}$ )" (claim 29). There is no disclosure in Kondo or Pasqualoni which supports the proposition that both of these requirements are satisfied such that the CMP methods of these references would necessarily and inherently form copper (I)-BTA complex precipitate as asserted by the Examiner.

The Examiner's rejections also are deficient with respect to the Wojtczak and Kakizawa references. This is because the compositions of these references comprise numerous alternative ingredients which may or may not include an ingredient corresponding to Appellants' claimed amino acid complexing agent having a dipole ion structure. We appreciate the Examiner's point (Ans. 6-7) that the compositions of Wojtczak and Kakizawa may include glycine which is one of the complexing agents encompassed by claim 29. However, glycine is only one of many alternative ingredients disclosed by Wojtczak (cols. 3-4) and Kakizawa (¶ 0058). Significantly, the Examiner does not dispute Appellants' argument (App. Br. 7-8) that a number of these alternative ingredients would not satisfy the complexing agent requirement of the appealed claims.

In summary, none of the applied references contains any teaching or suggestion of the Appellants' claimed copper(I)-BTA complex precipitate or a method of treating this precipitate as required by the appealed claims. It is conceivable that the CMP methods of Kondo or Pasqualoni might be practiced in such a way that these precipitates would be formed by happenstance. However, the disclosures of these references do not support the proposition that such precipitates inevitably would form in practicing the CMP methods of Kondo or Pasqualoni. Similarly, while the numerous

composition ingredients of Wojtczak and Kakizawa include glycine, one of the here claimed complexing agents, there is nothing in the applied references which would have motivated an artisan to select this particular ingredient and then use the resulting composition to clean a substrate having copper(I)-BTA complex precipitate unknowingly formed thereon when practicing the Kondo or Pasqualoni methods in such a way that the precipitate is formed by happenstance.

Under these circumstances, we are convinced that the Examiner's rejections have been formulated by the unwitting application of hindsight, for the references themselves contain no suggestion for combining and practicing the selected teachings thereof in a way which would yield the Appellants' claimed method. We cannot sustain, therefore, either of the § 103 rejections advanced by the Examiner on this appeal.

The decision of the Examiner is reversed.

REVERSED

cam

ROHM AND HAAS ELECTRONIC  
MATERIALS CMP HOLDINGS, INC.  
451 BELLEVUE ROAD  
NEWARK, DE 19713